FOREST RESOURCE SUMMARY

Arizona has an incredibly diverse landscape ranging from the lower Sonoran desert scrub and pinyon-juniper woodland to the high-elevation spruce-fir forests. Forests cover approximately 27% of the state, which is over 19 million acres. Arizona's trees and landscape create a large diversity in the insects and diseases that attack them. This report highlights the key findings in the Arizona Department of Forestry and Fire Management's (AZDFFM) 2024 Forest Health Conditions Report. The report includes information on the insects, diseases, and abiotic factors that have significant impacts on Arizona's forested landscapes.

CLIMATIC OVERVIEW

It is important to understand the climatic conditions occurring throughout Arizona, as precipitation and temperature are two of the biggest environmental factors influencing forest health. When trees are stressed from drought and increased average temperatures, they become increasingly susceptible to infection and infestation from diseases and insects. In severe drought conditions, the lack of water can lead to decreased overall tree health and direct drought-related tree mortality. Arizona experienced a lack of precipitation in January of 2024, but improvements were seen in February and March, with southwestern precipitation reducing drought coverage in some areas. However, May started the record breaking streak of 113 days over 100 degree weather in Maricopa County from May 27th through September 16th. June brought a surge of moisture and flash flooding in AZ which contributed to improved drought conditions in July. August saw even warmer temperatures, averaging 2-8 degrees above normal. Overall, September through December saw unusually warm temperatures, with the heat exacerbating dryness and drought conditions in the region.

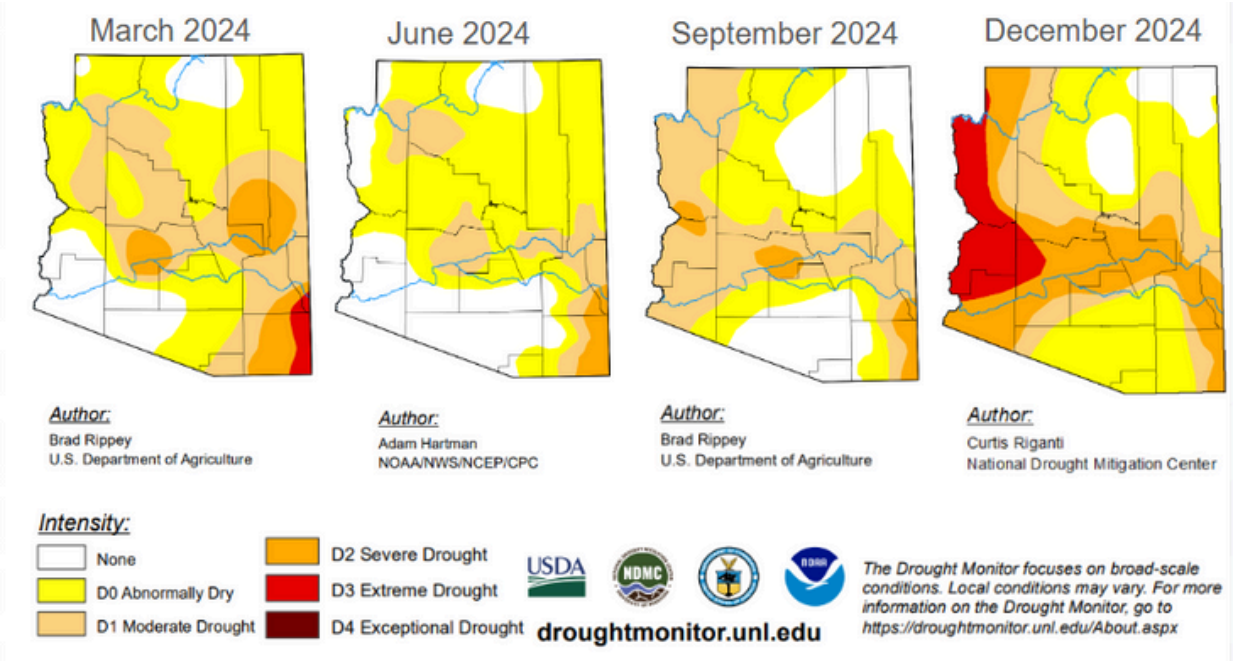


Figure 1. *U.S. Drought monitor maps of Arizona in March, June, September, and December, 2024; obtained from droughtmonitor.unl.edu*

AERIAL SURVEYS

Annually, AZDFFM partners with the USDA Forest Service, Forest Health Protection (FHP) team, to survey millions of acres with forest and woodland resources from the air; this is called an Aerial Detection Survey (ADS). In the summer of 2024, during the ADS season, over 15,000,000 acres were flown to identify dead, dying, and declining trees. The aerial surveys cover National Forest lands (54% of the area surveyed), tribal lands (31% of the area surveyed), private lands (8% of the area surveyed), state lands (6% of the area surveyed), and county lands (less than 1% of the area surveyed).

FOREST DAMAGE

The Arizona Department of Forestry and Fire Management divides the state into five (5) distinct districts. Each district shares similar forest and woodland health issues while experiencing a varying degree of tree damage from insects and disease. Each district will be reviewed individually to more accurately show which insects and diseases are impacting the state, and where their damage can be found throughout the state.

It is important to note that the acreages for each district may look inflated due to the fact that some acres are counted twice, as more than one damage causal agent was found there.

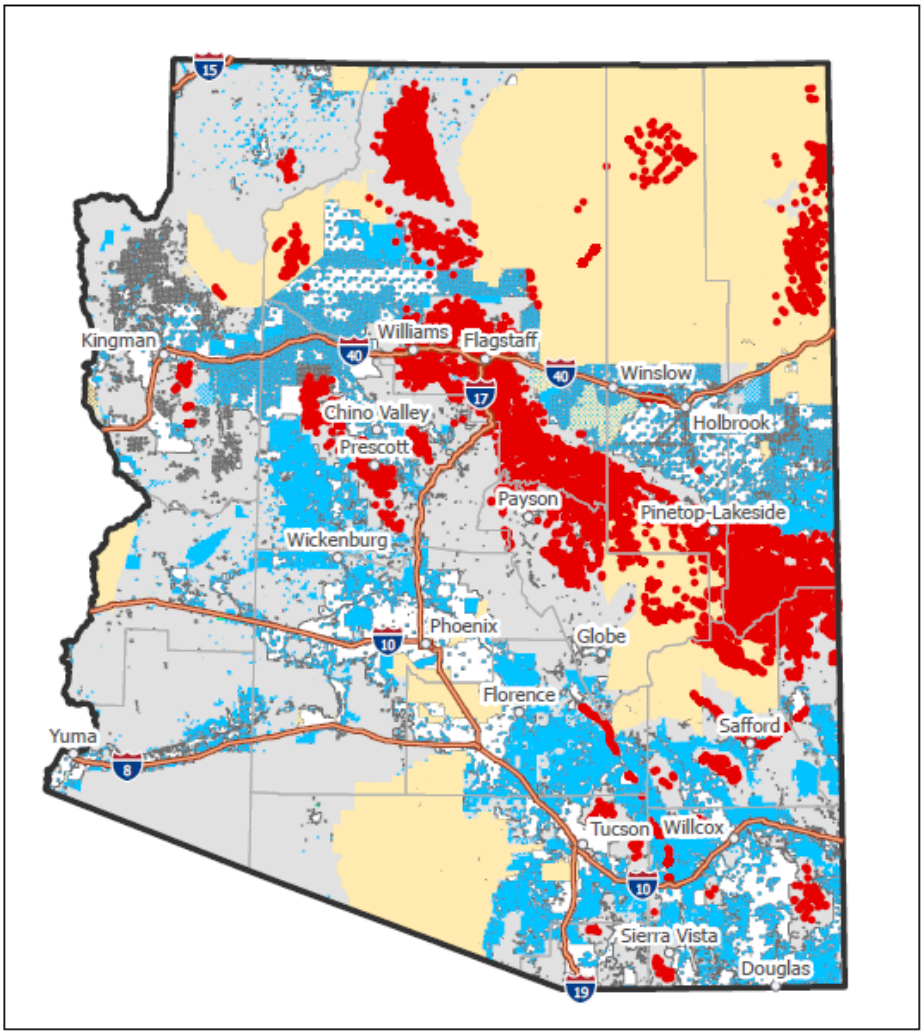


Figure 2. *A Map of All Insect and Disease Observations in the State of Arizona, 2024. Forest areas with damage caused by insects and diseases are shown in red.*

Northern District (A1S)

- 9,227 acres with bark beetle-caused tree mortality
- 1,833 acres with defoliator damage
- 336 acres with sap-feeder damage
- 3,877 acres with drought damage

Northeast District (A2S)

- 15,637 acres with bark beetle-caused tree mortality
- 2,826 acres with defoliator damage
- 14,447 acres with sap-feeder damage
- 3,259 acres with drought damage

Southeast District (A3S)

- 130 acres with bark beetle-caused tree mortality
- 6,384 acres with defoliator damage
- 6,384 acres with tamarisk leaf beetle damage
- 1,473 acres with drought damage

Central District (A4S)

- 6,301 acres with bark beetle-caused tree mortality
- 329 acres with defoliator damage
- 11,301 acres with sap-feeder damage
- 42 acres with drought damage

Northwest District (A5S)

- 1,883 acres with bark beetle-caused tree mortality
- 11 acres with defoliator damage
- 2,938 acres with sap-feeder damage
- 591 acres of drought damage

STATUS OF URBAN INSECTS

The Mediterranean pine engraver (*Orthotomicus erosus*), or MPE, was first discovered in the Central Valley of California in 2004. Since its introduction, this non-native bark beetle has steadily spread to Arizona. In 2018, the AZDFFM began monitoring for the presence and distribution of MPE, to determine if it had become established in the Phoenix Metro area. This monitoring program collected over 355,000 MPE beetles from 2018 through 2022; the data collected from these four years of trapping helped AZDFFM confirm its establishment in the Phoenix metro area and Tucson. In 2023 Early Detection Rapid Response trapping efforts in collaboration with the USDA Forest Service found MPE to have spread to Pinetop-Lakeside, Nogales, Superior, Topock, and Kingman. In 2024 additional trapping efforts confirmed MPE in in two new locations; Sedona and Cottonwood. This observation indicates the range of this beetle increasing into higher elevations and becoming a possible threat to native tree species. At this point, MPE has only been found in urban forests. But due to its large host range, this invasive insect poses the risk of infesting wildland forests, underscoring the importance of continued monitoring and exploring management options. As invasive insects such as MPE spread through Arizona, other potentially more harmful insects such as the Emerald Ash Borer (EAB) spread closer to the Arizona border. In 2024, trapping efforts for EAB began and at this time, EAB has NOT been found in Arizona and AZDFFM will continue monitoring in 2025. AZDFFM is working to improve public awareness and create a preparedness plan for communities to help slow the spread.

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ARIZONA
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